



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,854	03/18/2004	Takeo Tsukamoto	03500.017967.	5858
5514	7590	10/04/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			OLANDER, GABRIEL D	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	
			2879	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

✓

Office Action Summary	Application No. 10/802,854	Applicant(s) TSUKAMOTO ET AL.	
	Examiner Gabriel D. Olander	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-23 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/18/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/13/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 2,3,5,6,12, & 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Bower et al (US 6,630,772).

Claim 2: Bower discloses a method for manufacturing carbon fibers by means of a thermal CVD method, said method comprising at least the step of heating a substrate (line 16-17, column 4) including a catalyst layer (line 41, column 5) arranged on a surface of said substrate in a depressurized atmosphere including a carbon containing gas to grow carbon fibers from said catalyst layer, wherein a total pressure of the reduced pressure atmosphere is 2000 Pa or less, and a partial pressure of the carbon containing gas is 10 Pa or less (lines 43-45, column 6).

Claim 3: Bower discloses a method for manufacturing carbon fibers by means of a thermal CVD method, said method comprising at least the step of heating a substrate

Art Unit: 2879

(line 16-17, column 4) including a catalyst layer (line 41, column 5) arranged on a surface of said substrate in a depressurized atmosphere including a carbon containing gas to grow carbon fibers from said catalyst layer, wherein a total pressure of the reduced pressure atmosphere is 600 Pa or less, and a partial pressure of the carbon containing gas is 10 Pa or less (lines 43-45, column 6).

Claim 5: Bower discloses a method for manufacturing carbon fibers according to claim 2, wherein the partial pressure of the carbon containing gas is 1 Pa or less (lines 43-45, column 6).

Claim 6: Bower discloses a method for manufacturing carbon fibers according to claim 3, wherein the partial pressure of the carbon containing gas is 1 Pa or less (lines 43-45, column 6).

Claim 12: Bower discloses a method for manufacturing carbon fibers according to claim 2, wherein said carbon containing gas is an acetylene gas (line 36, column 7).

Claim 13: Bower discloses a method for manufacturing carbon fibers according to claim 3, wherein said carbon containing gas is an acetylene gas (line 36, column 7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 7-9, 11, & 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bower et al (US 6,630,772) in view of Colbert et al (US 6,756,025).

Claim 1: Bower et al discloses a method for manufacturing carbon fibers by means of a thermal CVD method, said method comprising at least the step of heating a substrate (line 16-17, column 4) including a catalyst layer arranged on a surface of said substrate in a depressurized atmosphere including a carbon containing gas (lines 43-45, column 6) to grow carbon fibers from said catalyst layer (line 41, column 5).

Bower does not discloses a method of manufacturing carbon fibers wherein a partial pressure of the carbon containing gas is 1/1000 or less of a total pressure of the reduced pressure atmosphere, and is 10 Pa or less.

Colbert teaches a method of manufacturing carbon fibers wherein the partial pressure of the carbon containing can be 1/1000 or less of total pressure of the reduced pressure atmosphere (lines 20-21, column 27) and is 10 Pa or less (lines 41-44, column 26). This atmospheric composition is chosen so as to vary the reaction time and growth rate (lines 39-48, column 26).

The addition of the atmospheric composition as taught by Colbert to the method of manufacturing carbon fibers as disclosed by Bower would be obvious to one of ordinary skill in the art at the time of the invention, so as to control grown rates.

Claim 4: Bower discloses a method for manufacturing carbon fibers according to claim 1, wherein the partial pressure of the carbon containing gas is 1 Pa or less (lines 43-45, column 6).

Claim 7: Bower discloses a method for manufacturing carbon fibers according to claim 1, wherein said carbon containing gas is introduced into the depressurized atmosphere together with a carrier gas (lines 43-45, column 6).

Claim 8: Bower discloses a method for manufacturing carbon fibers according to claim 7, wherein said carrier gas is a hydrogen gas (line 38, column 6).

Claim 9: Bower discloses a method for manufacturing carbon fibers according to claim 7, wherein said carrier gas is an inert gas (lines 37- 38, column 6).

Claim 11: Bower discloses a method for manufacturing carbon fibers according to claim 1, wherein said carbon containing gas is an acetylene gas (line 36, column 7).

Claim 18: Bower discloses a method for manufacturing carbon fibers according to claim 1, wherein said carbon fibers are graphite nanofibers (line 42, column 5).

Claim 19: Bower discloses a method for manufacturing an electron-emitting device using carbon fibers as electron-emitting members, wherein said carbon fibers are manufactured by a manufacturing method according to claim 1 (see above).

Claim 20: Bower discloses a method for manufacturing an electron source composed of a plurality of electron-emitting devices arranged on a substrate, wherein said electron-emitting devices are manufactured by a manufacturing method according to claim 19 (see above).

Claim 21: Bower discloses a method for manufacturing an image display apparatus including an electron source and an image-forming member arranged to be opposed to said electron source (fig. 3), wherein said electron source is manufactured by a manufacturing method according to claim 20 (see above).

Claims 22 and 23 are rejected as claim 1 (see rejection of claim 1) since further recitations in claims 22 and 23 have not been given patentable weight because is considered an intended used recitation. It has been held that a recitation with respect to

the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bower et al (US 6,630,772) in view of Colbert et al (US 6,756,025) further in view of Green et al (US 6,090,363).

Bower in view of Colbert discloses a method of manufacturing carbon fibers comprising all the limitations of claims 1-3 detailed above. Bower in view of Colbert does not disclose said method including a catalyst layer comprising catalyst particles made of an alloy of Pd and Co.

Green teaches a method of manufacturing carbon fibers including a catalyst layer comprising catalyst particles made of an alloy of Pd and Co (lines 15-30, column 2) in order to chelate or bind ions as a heterogeneous catalyst.

The combination of the catalyst layer as taught by Green with the method of manufacturing carbon fibers as disclosed by Bower in view of Colbert would be obvious to one of ordinary skill in the art at the time of the invention so as to bind ions.

Allowable Subject Matter

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art does not show or suggest a method of manufacturing carbon fibers wherein carbon hydride gas is utilized.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gabriel D. Olander whose telephone number is 571-272-6011. The examiner can normally be reached on 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

G.D.

Gabriel Olander
Patent Examiner
Art Unit 2879

Karabi Guharay

KARABI GUHARAY
PRIMARY EXAMINER